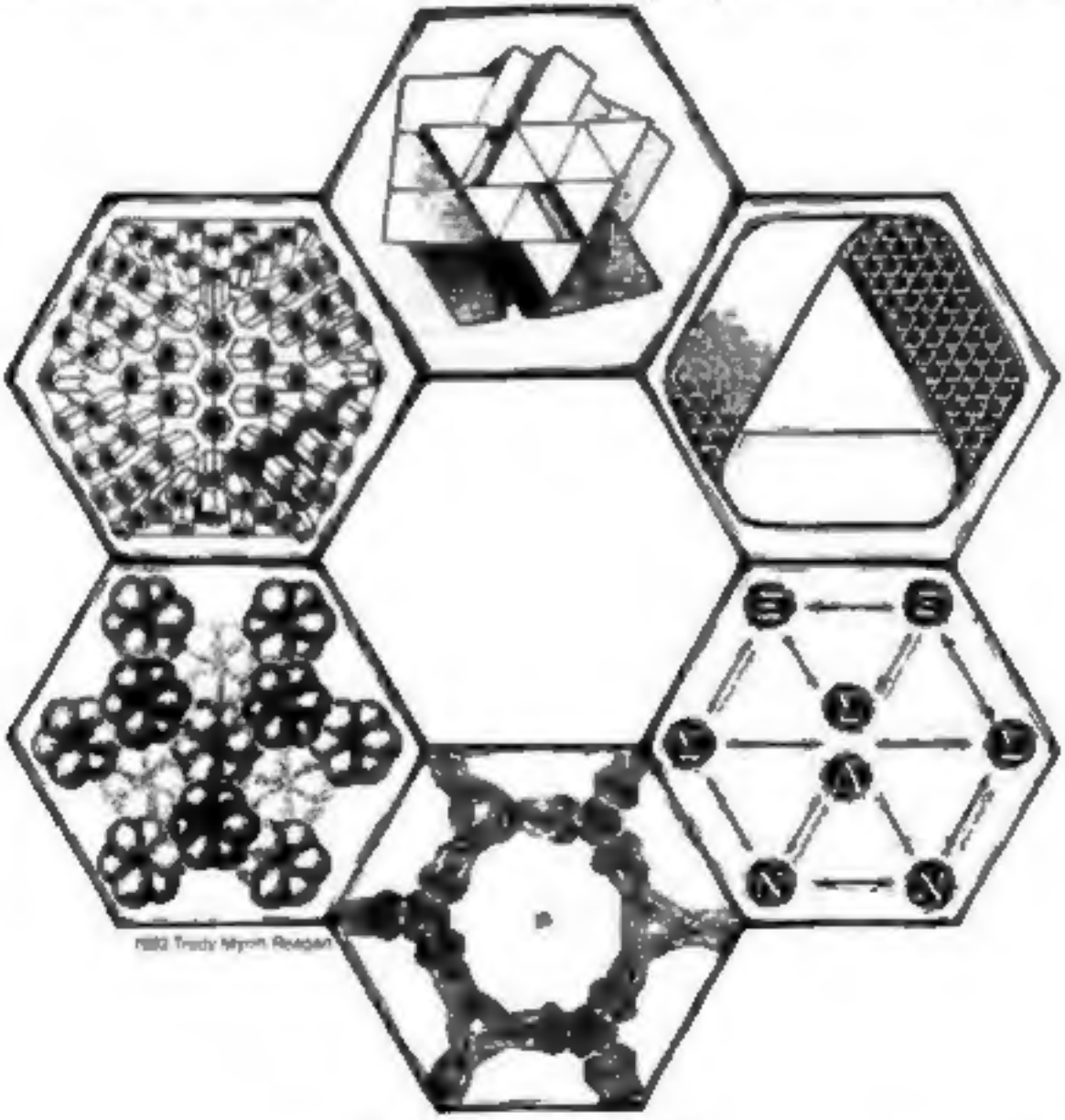
Ylem

ARTISTS USING SCIENCE & TECHNOLOGY

Ylem *(Eye-lum):* 1. The primordial stuff out of which the universe emerged. 2. An emerging group of artists who believe that science and art enhance each other and human understanding.



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Vol. 5, No. 2

Designing for Thinking

March 1985

About the Cover

Conjecture by Trudy Myrrh Reagan

Humans look for patterns in space and time. The invented or discovered patterns that interest me most are the ones of great explanatory power, the tools for thinking we call conjectures.

About ten years ago I began a quest to collect all sorts of hexagonal designs to make modular art. Because of the wealth of material available, the problem was to choose topics that would eliminate all but the most interesting designs and concepts. "Conjecture" was such a topic, as will be seen by these descriptions of the patterns in my piece:

The most far-fetched pattern manipulation occurs in a mathematical field like topology, represented at the upper right by a Moebius Band. It is the study of objects in space having few or many dimensions.

Below it is a quark diagram, explaining some behaviors of the smallest subatomic particles which exist in space. Einstein went so far as to say that particles are simply a perturbation of space itself.

At the bottom of this work is a collection of atoms with a crude representation of the paths of their electrons. The nuclei are the focal points around which the electrons revolve. Electrons and particles in the nucleus are composed of quarks.

Moving up on the left, we come to molecules of sulphur-6 as they stack themselves into crystals eventually to become large enough for us to perceive as matter. The six-sided objects shown here represent the almost-empty shells of buzzing electrons (represented by a different convention in the previous diagram).

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This newsletter is published bi-monthly and distributed to members of Ylem. Membership application in on page 7.

Ylem Newsletter
Trudy Myrrh Reagan, director
Mark Burstein, editor
David Healy, art director

Contribution are most welcome. Drawings, graphic pieces, photos; with explanation; submissions to "Opportunities", "Calendar", short book reviews, gallery reviews, or articles are sought.

Ylem Notes

by Trudy M. Reagan

At long last Ylem is non-profit in the eyes of the Federal Government. In fact, donations made to Ylem since August 6th, 1984 are tax-deductable.

Some of you have a colored mark on your address label. In the last newsletter you received a colored envelope which we forgot to explain: It is for your membership renewal. This extra newsletter is your reminder notice. We hope you enjoy Ylem enough to renew another year, because memberships are almost our entire source of income, and your continued support is invaluable.

Through an arrangement with Leonardo Magazine, our members recently received a complimentary copy of this science and art magazine. A $30 membership in the International Society for the Arts, Sciences, and Technology for individuals includes a subscription to this quarterly journal. Also write them for instructions for submitting articles: The magazine may want to publish one about your work. In fact, a number of our members have been published in Leonardo over the years.

As we begin our fifth year, we have two major projects going: To document Ylem art and artists on film and video; and to work on projects related to SIGGRAPH '85.

The video tape project will use slides, already existing video tapes, and eventually, new interviews of artists. It will generate more than one show, one of which may be shown at an event in San Francisco during SIGGRAPH. Please send slides to the Ylem address, and inform us of video tapes about yourselves.

A "Pop the Cork" potluck meeting will be held March 23rd, 4:30 to 9:30 pm at Josepha Haverman's. If you are interested in discussing the following, you're invited: nomination of leaders for next year (before supper); and interactive and computer exhibit opportunities for SIGGRAPH (after supper). Trudy will bring champagne to celebrate our non-profit status and we will pop the cork at supper.

Other events to check on the Ylem Calendar: Stan Isaacs' polyhedral puzzle party, all afternoon on April

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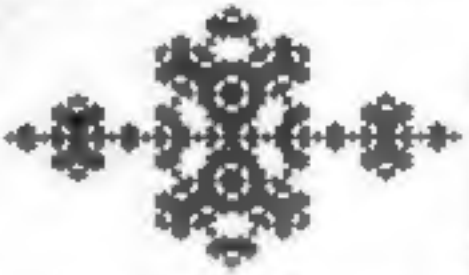
Turtle Filigree



© David Thornburg 1980

A close look reveals that David Thornburg's symmetrical filigree design is a fractal, which is to say, the largest units are created from a repeated shape that is similar to it, which is in turn created from a still smaller version of itself, so on ad infinitum. He programmed it in "turtle graphics" using the language, Logo, which he has done so much to popularize. He has this to say about turtles in his book, Discovering Apple Logo:

" Much of the excitement surrounding Logo is a result of its incorporation of a beautifully simple and powerful graphics environment. Pictures are created on the display screen by giving instructions to an imaginary "turtle," which draws lines as it moves along. These instructions take the form of a descriptive procedure of the object being drawn. As this book is devoted primarily to "turtle graphics," it is perhaps beneficial to compare the turtle's characteristics to those of conventional coordinate geometry."

After contrasting a figure described by x and y coordinates with one described by the turning angle, or orientation of the turtle, and the line length, or number of "steps" that the turtle takes, he analyzes the difference metaphorically:

"Consider the following two responses to the question 'Where do you live?'

"'I live at 1234 Snowflake Court.'

'You go down this street for two blocks, turn right, and go down three houses to the one with the blue door and the oak tree in front.'

"The first response, an address measured against a fixed reference, assumes familiarity with the streets in an area perhaps as large as a city. To make use of that answer, you also

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Exploratorium's New Exhibits. Works by Clayton Bailey, Jonathan Glaster, Maggi Payne, and Nick Bertoni. 3601 Lyon St., San Francisco.

March 16, 10 am
How to Photograph Art. Bring one piece of either 2-D or 3-D art and learn how to photograph it. $5, Artists Equity members, $12, non-members. (Artists Equity membership brings many other benefits. See "Opportunities"). Artists' Gallery, CCAC, 5200 College Ave., Oakland.

March 17 — Sept. 14
Tsukuba Expo '85. Tsukuba Science City, Ibaraki Prefecture, Japan. A $2 billion fair of 21st century technology. Info: Pabotsumimei Bldg. 23F 2-2, Uchisaiwai-cho, 2-chome, Chiyoda-ku, Tokyo 100, Japan.

March 23–24, 12–5pm
Splash! Exhibit, Japanese found sculpture using rocks that suggest landscapes. One cut in the rock is permitted to form a horizontal resting surface. Tradition requires very minimal presentation. Buddhist Temple, 2751 Louis Road, Palo Alto.

March 31, 1–4 PM
Twin Pines Art Center Moving Sale. Art and art supplies. 1221 Ralston, (in Twin Pines Park), Belmont. Artists will be relocating their studios soon in a former school in Belmont.

April 13, 11 am
Ylem Business Meeting. Upstairs at Tresidder Union, Stanford University. Follow directions to Stanford on back page. Tresidder U. is about 3 blocks behind Main Quad. Ascend the spiral stairs and enter. The chairs where we will be sitting are just inside.

April 13, 2–5:30 pm
Ylem Forum, "Designing for Thinking", Jordan Hall 040, Stanford University. See directions on back page.

April 14–18
National Computer Graphics Association Conference, Dallas Convention Center, Dallas, TX. Like Siggraph, but more about practical applications. Registration hotline: 1-800-543-8000.

April 21, 1 pm
Puzzle Party at Stan Isaacs'. Bring polyhedral puzzles, brain teasers, mathematics-related books and other oddities to share. Play with Stan's puzzles. 210 East Meadow, Palo Alto. Call 415/858-2568 for directions.

April 24, 7 pm
How to Present Art for Commissions or Purchase. Informative panel discussion sponsored by Artists Equity and SFMOMA. Fourth Floor Board Room, San Francisco Museum of Modern Art.

April 28, 2 pm
Ylem Field Trip Behind the Scenes at the Exploratorium. See how exhibits are prepared. Meet by water vortex inside main entrance. Small entrance fee to museum. 3601 Lyon St., San Francisco. Info:415/856-9595.

April 28, 7 pm
Ylem Party at Helen Gallery. Bring finger food, and any art or objects to share relating to 3-D technology. 1702 Haight St., San Francisco. Info: Gary Zellerbach, 415/668-HOLO.

Until April 30
Recent Computer Art by Lee Bacon, Elmwood Gallery, 2999 College Ave., Berkeley.

Opportunities

Apply Now
Computer Graphics Exhibit. Hard copy, slides, video tapes, speakers & demonstrations sought. Info: Idee Hale c/o Santa Rosa Junior College 1501 Mendocino Ave. Santa Rosa, CA 95401; 707/527-4277 or 4339. For exhibit April 11–May 3. Santa Rosa Junior College Art Gallery.

Apply Now
"Technology in Expression". Mid July — Sept. (tentative) at MIT Museum Computer Gallery. Competitive show of works in various media reflecting a development of themes in art history as interpreted through the culture of technology. Unique works and videotape screenings. Possibility of performance artist, lectures, demonstrations, etc. In September.Send slides, resume, SASE to Visual Technologies "MIT Show, "552 Chatsworth Rd. Stamford, CT. 06906; (212) 475-1586.

Apply Now
SIGGRAPH '85 Needs Volunteers. The conference has a good complimentary policy toward helpers contributing at least 20 hours'time to it. Contact either SIGGRAPH Art Show Office, Rachel Carpenter, 4414 Piedmont Ave., Oakland, CA 94611; 415/653-6644, or Volunteer Coordinator Andy Goodrich, 3211 Lawson Lane, Santa Clara, CA 95050; 408/986-2211.

Deadline April 5
Corporation for Public Broadcasting Program Fund announces an open solicitation process through which independent producers may submit proposals for PBS programs.Info: CPB Program Fund, 1111 16th St., Washington, DC 20036.

Deadline April 7
Futureworld Video Competition. The competition challenges the entrant to make an original statement on the subject of the future. Entries can be 5 to 90 minutes in duration, and must be submitted on 3/4" tape. Entry fee, $25. A $1000 cash prize will be awarded to the first place winner. Apply to: Futureworld Video Competition, 940 Emerson Avenue, #14, Belmont, CA 94002; (415) 595-3088

Deadline April 10th
Futureworld Computer Graphics Contest. Entries judged by slides, 2 entries per artist. Images by top four winners will be reproduced onto a museum-quality Cibachrome print, mounted and framed. Send with SASE to: Futureworld Computer Graphics Contest, 940 Emerson Ave. #14, Belmont, CA, 94002; 415/595-3088.

Deadline April 12, 1985
ACM SIGGRAPH '85 Film/Video Show. The Twelfth Annual Conference and Exhibition on Computer Graphics and Interactive Techniques: July 22–26, Moscone Center, San Francisco. Info: ACM Siggraph '85, 111 East Wacker Drive, A-2, Chicago, IL 60601; 312/644-6610.

The Astronaut's Gallery. A gallery in the Toronto area, dedicated to the art of flying is opening. It will sell posters of fliers, astronauts and mythical characters, products involving anything that flies or is in the heavens. Please send description of your product or work to The Astronaut's Gallery 7751 Yonge Street, P.O. Box 69, Thornhill, Ontario Canada L3T 3N1.

Beyond The Horizon. A gallery of artists whose works are generated by computer. Contact Elizabeth F. Van Doren, Director, Beyond The Horizon, 4600 Winthrop Street, Pittsburgh, PA 15213; 412/621-9777.

A National Museum of Computers and Telecommunications is proposed for the Los Angeles area by Shirley Lopez. She welcomes ideas from all interested people working in these fields, especially artists. Her address: 10642 Basford Dr., Cypress, CA 90630.

Master's degree program in interactive telecommunications, New York University's Tisch School of the Arts. Technology: Students are introduced to the principles governing basic telecommunications technology such as (two-way cable, teleconferencing, microcomputers, videodisc, electronic mail services, satellites, fiber optics. Applications: Students learn how telecommunications technology can be used in business, government, education. Theory and Research: Emphasis on the principles of human and organizational communications theory and research, the design and evaluation of telecommunications systems.Info: Prof. Red Burns, Interactive Telecommunications Program, Tisch School of the Arts, NYU, 721 Broadway, 4th floor, New York, N.Y. 10003; 212/598-3338.

Spring 1985
Computer Graphics Design Workshops. For schedule, write Pratt Center for Computer Graphics in Design 9 Skyline Drive, Hawthorne, NY 10532

Program Ideas, publishable members' art sought on subject of "Life" for possible inclusion in Ylem July newsletter and August forum. Contact Ylem address; 415/856-9595.

Summer 1985
Workshops at Anderson Ranch. Emphasis on clay, wood, and photography. Info: Anderson Ranch Arts Center, P.O. Box 5598, Snowmass Village, CO 81615.

International Television Arts. A video/computer arts distribution network, accepts descriptions on potential video or computer art acquisitions. Specify format and send to Jim Weiner, Acquisitions, ITVA, 799 Broadway #325, NY, NY 10003.

Video Art Showcase, soon to be a feature on Manhattan Cable TV, seeks innovative video/computer art program material. Info: Gil Shaw, Programming, VAS, 451 Broome St, SW, NY, NY 10013.

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Synopsis of "Making Data Re

Viem Forum, February 1985, San Francisco *by Mark Bartosh*

First one takes *reality*, and from it extracts *data* ("that which we choose to measure"). Then one takes the *data* and tries to make it *"real"* again. In this process of representation, manipulation, simulation, and interpretation, much is revealed and, often incidentally, art is produced. Such was the theme of this meeting.

Trudy Reagan started us off with her circular aphorism "reality is not data/data is not knowledge/knowledge is not wisdom/wisdom is not reality". Perhaps the true theme of the meeting is "Making Data Real".

We watched a movie from **Phoenix Data Systems** titled *"Insight"*. The sound track was unfortunately lost, but we could pretty well piece together the imagery, which consisted in the main of "slices" of the human body — skull, brain tissue, musculature, and spinal cord. The seemingly 3-dimensional chunks were

computer-generated. The computer input consisted of stacks of flat cross-sections of the body from CAT scans (Computerized Axial Tomography, a kind of X-ray). These reconstructions are very useful in surgery, prosthetics, and medical analysis. Seen in this way, people look a lot like steaks.

The Japanese video artist **Masahiko Kuwahima** sent us his piece "Revolution in the Distance", an attic collage of city noises, city scenes, space, and skeletal buildings produced on a video digitizer.

Michael Starks, who has been involved for many years with stereo (3-D) television, next shared with us some of his inventions and discoveries. The phenomenon of stereo vision (i.e. depth perception) is as old as man himself. He noted that during its development "a lot of monkeys fell out of a lot of trees". The *simulation* of it began around 1835 with the invention of the stereoscope (which *predated* photography!).

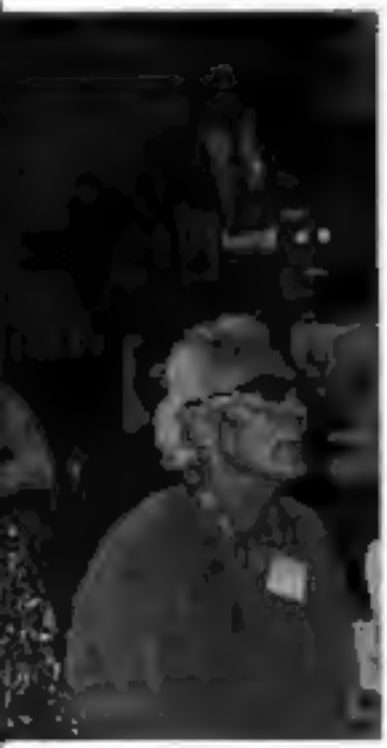
The principle is simple — the *separation* of two distinct images (one for the right eye, one for the left) and their apparent *superimposition*. To produce these two images, seemingly 3" apart, many devices have been used: a camera with two lenses (or prisms); two cameras; carefully plotted line drawings; temporal parallax (e.g. taking two pictures out of an airplane window seconds apart); and, more recently, programming the laws of optics and viewpoint into a computer. Then to re-produce the two images while keeping them separate one can: physically separate the eyes (such as on a stereoscope or Viewmaster); make one image red and the other green ("anaglyphs"); use cross-polarized filters and glasses; in the case of television, send two alternating picture signals to be viewed through goggles with shutters; or even use multiple images in a lenticular screen (the "Lenticular Parallax Panoramagram" of the 1930s and 40s and today's Nimslo cameras.

First, Michael demonstrated the illusion of depth with slides to the roomful of people wearing polarized-plastic glasses. Then we were able to come up and view his television setup two at a time with the goggles containing the shuttering device that turned the rapidly alternating images into optical magic. It was rather thrilling to watch 3-D TV, although there are clearly some tradeoffs still to be worked out — image quality, cost, convenience, and the inevitable eyestrain due to "accomodation conversion breakdown".

Unexpectedly, we were then treated to more slides (lucky we all still happened to have those silly glasses!) by **Matt Bebbels** of the National Stereoscopic Association. Being a stereo buff, he always has a packet of slides with him. Among the images I particularly remember from both their collections were: a protein molecule floating mysteriously above the screen; a computer graphic of a DNA spiral; oceanic topography; a cartoon of a castle being stormed;

al"

ıs figures; aerial landscapes; spectacular view of Yosemite. **Donna van Dijk** explored the aesthetic possibilities of nd mapping. Working on large ommissions, she produces rful creations structured on aps. Using photomontage, ctural elements, landforms, ons, hydrology charts, satellite , and USGS topographic maps. ces (such as a recently ted triptych of the Richmond one for Chevron Oil) blur the lion between science and art. ly we saw a film done by **Max** at Lawrence Livermore n *"Fusion"*. It began with a ir sphere, as we travelled into a galactic catastrophic nic whirligig. Again lacking a rack, we were on our own for tion. Fortunately, this was an audience. Physicist Bruce rg said that we were seeing of deuterium being imploded r light into tritium. lights came back on and the dicated that all was real once Apparently.



Experiences in Visual Thinking

by Robert McKim (Brooks/Cole Pub., 1980)

This is an interactive book. My recollection of reading it seven years ago evokes the deserted interior of the 1950's luncheonette car of an AMTRAK train I was riding at the time. It was night. I was following these instructions in the book:

"1. Look at a scene... see it as an overall pattern...follow outlines and count salient features. 2. Then close your eyes, 'let go', and conjure up the clearest possible image of what you have just seen. 3. Reopen the eyes, compare this image with reality, and repeat the process of analytical looking."

I remember being distressed at the inaccuracy of my mental image, but even more do I recall the solitude of the enameled pink lunch car, the empty tables and black windows and rolling train noises, the idle kitchen equipment — and the unexpected scurrying of a mouse across the aisle.

Later chapters demonstrated to me how internal image formation and drawing help each other, and together generate a prodigious number of ideas for solving design problems. McKim brings together notes on perception theory, strategies for designing and problem-solving, and ways to develop an awareness of one's aesthetic-kinesthetic skills as they work in concert with analytic thinking. Finally, he pushes the reader to use pencil and paper to give flesh to design solutions ricocheting in one's head.

I am fond of this book, and I suggest that the conscientious reader who does the sometimes wacky exercises will be too. By comparing my ease in doing them now with my difficulty years ago, I see that McKim's thesis is correct: one's power to visualize can be improved with conscious interest and practice.

— Trudy Myrrh Reagan

Nancy Strobe's designs for a glove with gripping powers. © Wadsworth,Inc. 1972, 1980. Reprinted by Permission of Brooks/Cole.

Challenge: Can an optical illusion of a seemingly 3-dimensional object be drawn that flips from a right-handed twist to a left-handed one, and vice versa? This would illustrate such transformations as one might predict in a quantum psychology. Discuss problems and share solutions with author Eddie Cohen, 850 Colorado, Apt. 3-A, Menlo Park, CA 94025; 415/321-9271.

The Independents. A national showcase of film/video works by independents is being offered on 2 NY cable outlets. Info: The Learning Channel, 1320 New Hampshire Ave. NW, #240, Washington, DC 20036; 202/331-8400.

Artists Equity offers many benefits to the professional artist: group life and health insurance, insurance for artwork, information on legal matters and occupational hazards, as well as national lobbying for art legislation, and events like those described on the Calendar. Info: Artists Equity, P O Box 28068, Central Station, Washington, DC 20038; 202/638-0633.

Resource List

The Association for Computer Art & Design Education. ACA + DE's purpose is to help individuals and institutions interested in integrating the computer into fine art and graphic design curricula. Members receive the following benefits: Annual Showcase/exhibit, Compuserve. Full Membership $35. Info: Chip Gordon, Executive Director, ACA + DE, P.O. Box 408, South Plainfield, New Jersey, 07080; 201/756-9278.

The Wired Librarian's Newsletter is zany, humorous, a bit cynical and packed with facts and tips about microcomputer and software for librarians. It is irreverent, but at the same time imminently useful in decoding the sometimes confusing world of high technology. $15 per year from The Wired Librarian's Newsletter, c/o Microcomputer Libraries, 145 Marcia Dr., Freeport, IL 61032; 815/235-2955.

Mindset Video Production System. A videographics system which allows for the overlay and integration of Mindset generated graphics to any standard video source. A productive way to expand your Mindset computer. $3799. Info: 408/737-8555.

Bay Area SIGGRAPH. Its intent is to promote local interest and professional support for computer graphics by means of technical and artistic meetings, lectures, shows, and presentations. Dues, $10.00 per calendar year. Brian Cabral, Bay Area SIGGRAPH Treasurer, P.O. Box 3553, Santa Clara, California 95055.

Mathematics and Optimal Form. Stefan Hildebrandt and Anthony Tromba (Scientific American Library, 1985, $25). Beautiful illustrations of such forms as bubbles and crystals, and readable text. Much here for the person who can't "read mathematics".

Music Construction Set. An "instrument" for all ages. Teaching aid in composition and notation. Info: Electronic Arts, 2755 Campus Dr., San Mateo, CA 94403.

"19 to Learn By", Psychology Today. Sept. '84. An evaluation of new computer programs "that really do help children".

Synergetics Study Group. People interested in the mathematical aspects of Buckminster Fuller's work are having get-togethers. Info: Jeremy Sherman, 1940 Yolo Ave., Berkeley, CA 94707; 415/526-8869.

"The Shape of Things" and **"Mathematical Mystery Tour".** Two vivid NOVA programs about the implications of mathematics. Transcripts: Send $4 to P.O. Box 222, Boston, MA 02134, and mention name of program. Available on film later in 1985 from Time-Life Video, 100 Eisenhower Dr., P.O. Box 644, Paramus, NJ 07653; 201/843-4545.

Coronary Angiography. Dr. Jo. Silverman (Addison-Wesley, 1985). A very specialized book for surgeons. However, it is worth noting because it comes with a plastic model of the heart that "permits the student to visualize vessel motion in three dimensions instead of the two-dimensional mode . . . as a movie. . ." It is not only the tools of new scanners and computer simulations that are changing the teaching of such subjects, but also teachers' awareness of the value of visualization.

The Visual Display of Quantitative Information, Edward Tufte (Graphics Press, Cheshire, CN, $30, hardcover). The author is a political scientist as well as graphic designer. This beautifully presented book offers historical examples of graphs, (including one on ruinous government deficits dated 5700!); graphs fascinating in their variety and ingenuity; and sensible guidelines for the clear and truthful presentation of statistics.

Lightworks Magazine. Illuminating new art and the new history of its innovators. 4 issues, $16. Lightworks Magazine P.O. Box 1202, Birmingham, Michigan 48012 U.S.A.

Electra. A thick, comprehensive, visually interesting Catalogue from Musee D'Art Moderne Paris — world electronic-art exhibit Dec. 10 '83 to Feb. 5 '84.

SCAN. The latest developments in graphics and music for small computers. SCAN is published by the Small Computers in the Arts Network. $12 for 10 issues. SCAN, Box 1954 Philadelphia, PA 19105.

Applied Concepts in Microcomputer Graphics, by Bruce Artwick. Description of equipment that would be good to read before investing in some. Design elements, and mathematical transforms discussed as well as animation and presentation graphics. $30. 15-day trial offer. Prentice-Hall, Inc., Rt. 59 at Brook Hill Dr., W. Nyack, N.Y. 10995.

Design Methods, Seeds of Human Futures, by J. Christopher Jones (Wiley-Interscience, 1970). This book is the first attempt at understanding and describing the new design methods that have appeared in response to a world-wide dissatisfaction with traditional procedures.

Visual Pens in Design, by Eli Kince (Watson Guptill, 1982). The humorous image as a communication tool.

Facing the Future

by Aaron Marcus

One of the key problems in artificial intelligence and fifth generation computers is this: what does knowledge look like? If we have gigabytes in our workstations, we have access to so much that we have access to nothing. Part of the solution in making increasingly complex systems of knowledge and tools comprehensible to human beings is designing the appearance of facts, concepts, and emotions, as well as the tools for managing and interacting with this knowledge.

It is an exciting and challenging time for the visible language programmer (information-oriented, systems-oriented graphic designer) who can and must assist computer language programmers in visualizing structure and process. Their task is to create the Three Faces of computers: Outer-faces, Inter-faces, and Inner-faces.

Outer-faces are hardcopy or softcopy displays of information. Inter-faces represent the command/control and documentation dialogue between the human being and the machine. Inner-faces show the code and operating systems of the machine itself.

Aaron Marcus and Associates is a team of professionals that helps to create the visual metaphors and information narratives that will inform, listen to, and instruct us as we make our way through worktime and playtime. Cinematically speaking, we are now in the era of the silent movies. What we see on our computer screens now is just the beginning of the animated, colorful, noisy faces of the future that will greet us and guide us.

About the Cover continued from page 2 **Turtle Filigree** continued from page 7 **Ylem Notes** continued from page 2

Above it is a diagram of a virus. This species, barely visible in a scanning electron microscope, appears as a blurry icosahedron. Molecular biologists anxious to understand it in more detail have drawn this conjecture of its structure. Here, matter aggregates itself into a living creature.

Where life exists, there is the possibility of thought, represented here by a puzzle by Stu Coffin. Puzzle makers have a mental model not only of how polyhedral shapes can be made to fit, but also of typical thinking responses. They play with thwarting the expectations of those who will try to solve their constructions.

Where there is thought, the possibility of conjectures about space exist...

As I worked on this hanging, the circular arrangement of its modules suggested itself. It led me to read about atoms and brains, levels of existence and "strange loops". It became a conjecture, a tool for thinking in its own right.

A MEMORIAL

"If in the course of some wandering I come onto something delightful or exhilarating or beautiful or insightful, I want to tell someone else about what I have found. More than that, I want to bring them along with me to share what I have discovered: a view, a feeling, a person or a book or a new way of looking at physics or at justice, or a new way of teaching relativity."

Frank Oppenheimer
August 14, 1912 – February 3, 1985
Founder and Director
of the Exploratorium

have to know where Snowflake Court is relative to your present location. Although the address might be complete, it is only valuable to you if you are familiar with the city. The second response describes the procedure by which you would get to the house, given your present position and orientation. It is a purely 'local' description in that it makes no assumption that you know any of the streets in the community. It assumes only that you can follow simple instructions that make incremental changes in your present position. If you were in a strange city, you probably would find the second answer much more useful than the first. Each instruction is given with respect to the position and orientation of the participant at the end of the previous instruction. This descriptive procedure is identical to that used in turtle graphics.

"Just as descriptive procedures make sense, the exceptional power of turtle graphics makes it most valuable for illustrating important properties of geometric figures (for example, curvature). Its similarity to natural descriptive language has made turtle graphics a most powerful vehicle in allowing people to discover important geometric principle on their own."

21st in Palo Alto; and a double-header on April 28th, a behind-the-scenes look at the Exploratorium at 3pm, and a party at 7 pm at the Holos Gallery in San Francisco. People attending both will probably contrive to eat supper somewhere together.

Many, many thanks to Lilli Quirke and Fred Stitt who put on outstanding events for us in February and March.

An Ylem newsletter for July, and a forum in Stanford on August 3rd on the subject of "Life" is being planned. We are looking for publishable art and program ideas. Also, anyone who knows artists working in this vein, be they photographers, biological illustrators or painters, please tell them that they will be welcomed as members. We need them! The biggest news in science in the last 15 years has been in the Life Sciences: molecular biology, ecology, brain research, and genetics, and the interests of more of our members should reflect this.

Some of the people who are too far away to join in these activities have expressed a feeling of isolation. Any of you are welcome to consider organizing your own events. Write the Ylem address for a list of ideas that are free or very cheap to do, and start your own chapter. This can be very low-key and informal, for the sharing of ideas. Ylem was formed in the same way because Trudy Myrrh Reagan was intellectually lonesome and forlorn.

YLEM IS A NON-PROFIT ORGANIZATION

Ylem Membership Application
Send to Ylem, 957 Moreno, Palo Alto, CA 94303

name _____

address _____

city _____ zip _____

enclosed

- ☐ to receive a sample issue
- ☐ $15 individual membership (1 year)
- ☐ $100 minimum Corporate/Institutional membership (1 year)
- ☐ $10 newsletter only, if you live more than 100 miles from San Francisco or Palo Alto.

Next Forum

"Designing for Thinking"

April 13, 2-5:30 pm, Jordan Hall, 040, Stanford University

Mechanical Universe, a video by Jim Blinn
Idea Forms, Scott Kim
The Lorenz system, math film by Bruce Stewart
Play-Tasting, De Koven
Motivation, and 'Flow'
Dream House, a video by Sally Pryor

presented in co-operation with the Stanford Computer Arts Society
Free-bring friends and art to share!

Bring these directions with you! From Hwy. 101 or El Camino, enter campus from University Ave. (Palm Dr.). Park around the oval in front of main Quad. Go to Old buildings on the front of main Quadrangle. (This is *not* the same as "Jordan Quad"!) "Jordan Hall is carved into the building overhead. Our meeting room is in the basement.
(11:00 a.m. business meeting in at Tresidder Union. Details on Calendar)

Ylem

867 Moreno, Palo Alto, CA 94303

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